

## Cross-matching in Spinal Surgery: An Audit on Compliance at the National Spinal Injuries Unit [NSIU] in Ireland

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### Abstract:

**Aim:** The Mater Misericordiae University Hospital [MMUH] is the NSIU in Ireland. It conducts a large volume of spinal surgeries, necessitating substantial blood product use. The objective of this audit was to assess the units of red cell concentrate [RCC] cross-matched for each spinal surgery against the Maximum Surgical Blood Order Schedule [MSBOS] in order to determine compliance with this standard and the cost if not achieved.

**Methods:** A closed loop audit was conducted. The first cycle comprised a retrospective review of all spinal surgeries in October 2024. The Number of RCC units cross-matched pre operatively for each patient was compared to MSBOS recommendations. A revised departmental blood transfusion guideline was then developed and implemented. The second cycle prospectively re-audited surgeries performed in May 2025.

**Results:** In October, 63 spinal procedures were reviewed, revealing 58 excess RCC units crossmatched intraoperatively, representing an overspend of €19,662. Over-crossmatching occurred in 43% (n=27) of cases, appropriate matching in 52% (n=33), and under crossmatching in only 5% (n=3). Following the introduction of revised guidelines, the 50 spinal surgeries in May 2025 demonstrated marked improvement. Excess RCC availability was reduced to 18 units corresponding to an overspend of €6,780. Over-crossmatching declined to 12% (n=6), compliance improved to 72% (n=36), and under-crossmatching was limited to 6% (n=3). Importantly, no patient required additional units to be ordered intraoperatively.

**Conclusion:** The initial audit demonstrated poor compliance with MSBOS. Following guideline implementation, compliance increased and unnecessary crossmatching and costs decreased. This closed-loop audit highlights the importance of evidence-based transfusion protocols in optimising blood bank utilisation and patient safety.